

REMARKS

Applicants appreciate the withdrawal of the finality of the previous Official Action. The current Official Action again rejects the pending claims as being anticipated or rendered obvious by one or more of several references. In particular, the Official Action rejects Claims 1-3, 5 and 9-13 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,669,501 to Robert J. Derleth. The Official Action also rejects Claims 1-3, 5 and 9-12 under 35 U.S.C. §102(b) as being anticipated by one of U.S. Patent Nos. 3,909,065 to John A. Main and 4,114,953 to Heinrich Baumgartner. Further, the Official Action rejects Claims 9-16 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 3,792,141 to Worthington W. Offutt, and Claim 9 under 35 U.S.C. §102(b) as being anticipated by U.S. Published Application No. 2001/0050110 to Werner Born, et al. With respect to 35 U.S.C. §103(a), the Official Action rejected Claims 4 and 6 as being obvious over the Derleth '501 patent and Claims 7 and 14-16 as being obvious over the Derleth '501 patent in view of the Offutt '141 patent.

As discussed below, independent Claims 1 and 9 have been amended to further patentably distinguish the claimed invention from the cited references. Moreover, new Claims 25-31 have been added to recite other unique aspects of the damage tolerant shaft of the claimed invention. Original Claims 17-24 that had previously been withdrawn have now also been canceled without prejudice to presentation in a subsequently filed divisional application. Additionally, the paragraph on page 9, lines 26-32 has again been amended in the same manner as presented in the prior Amendment while taking into account another amendment introduced in a prior Amendment, thereby overcoming the objection raised by the Official Action. In light of the foregoing amendments and the subsequent remarks, Applicants respectfully request reconsideration and allowance of the present application.

Independent Claim 1 has been amended to recite that the annular body is elongate and extends lengthwise along and symmetrically about an axis. The damage tolerant shaft also includes a plurality of ribs extending inwardly from the annular body and connecting within an interior at the annular body, and a filler material disposed within interstices defined between the annular body and the plurality of ribs and between the plurality of ribs at their point of connection. As now defined by amended independent Claim 1, the annular body and the

plurality of ribs cooperate to define elongate interstices that extend lengthwise through the shaft such that the filler material also extends lengthwise through the shaft. In addition to the elongate interstices that are filled with the filler material, the annular body and the plurality of ribs cooperate to define a plurality of voids extending lengthwise therealong.

Independent Claim 9 has also been amended to recite that the damage tolerant shaft includes a plurality of lobes that are elongate so as to extend in a lengthwise direction. As originally recited, the lobes are shaped relative to one another such that the lobes are capable of being positioned to define an annular body and a plurality of ribs extending within the annular body. The damage tolerant shaft of amended independent Claim 9 also includes a filler disposed between portions of adjacent lobes that also extend in a lengthwise direction between the elongate lobes.

None of the cited references, taken either individually or in combination, teach or suggest the damage tolerant shaft of amended independent Claims 1 and 9. In this regard, several of the references fail to describe shafts of any type; instead, describing various types of vehicle wheels. In this regard, the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent all describe various vehicle wheels. Applicants submit that a reasonably skilled person developing a damage tolerant shaft of the type recited by amended independent Claims 1 and 9 would not look to technology associated with vehicle wheels to discover solutions to the problems that they were confronting. As such, Applicants submit that the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent are non-analogous and therefore cannot properly be used to reject the claims.

Even if these references could properly be applied to the claims of the present application, none of these references, taken individually or in combination, teaches or suggests the damage tolerant shaft as now recited by amended independent Claims 1 and 9. In this regard, the wheels described by the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent are not elongate structures extending lengthwise along a respective axis as now recited with respect to the elongate annular body of amended independent Claim 1 and the elongate lobes of amended independent Claim 9.

More particularly with respect to amended independent Claim 1, even if the vehicle wheels were considered to define some type of elongate structure, the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent do not teach or suggest that the annular body and the plurality of ribs cooperate to define elongate interstices extending lengthwise through the shaft such that the filler material disposed within the interstices also extends lengthwise through the shaft. Instead, the adhesive material, such as polyurethane foam, that the Official Action considers to be filler material in the vehicle wheel construction of the Derleth '501 patent fills the void between the ornamental plastic wheel cover and the face of the steel wheel. As best shown in Figs. 1 and 2 of the Derleth '501 patent, the void in which the adhesive is disposed does not extend lengthwise through the shaft as now recited by amended independent Claim 1 and, instead, is only defined on opposite sides of the wheel. Since the voids do not extend lengthwise through the shaft, the filler material also does not extend lengthwise through the shaft as also now recited by amended independent Claim 1.

Additionally, the Main '065 patent describes a vehicle wheel having disc halves that define a space therebetween that is filled with elastomeric material. Likewise, the vehicle wheel of the Baumgartner '953 patent includes two mating wheel pressings that define an annular spacing cavity therebetween that is filled with a hard polyurethane foam. The voids defined by the vehicle wheels of the Main '065 patent and the Baumgartner '953 patent are not elongate and do not extend through the shaft as recited by amended independent Claim 1. Moreover, the material that fills these voids does not extend lengthwise through the shaft as also now recited by amended independent Claim 1.

Since none of the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent teach or suggest a damage tolerant shaft having an elongate annular body that cooperates with a plurality of ribs to define elongate interstices that are filled with filler material that extends lengthwise through the shaft, any combination of these cited references would likewise fail to teach or suggest the damage tolerant shaft of the amended independent Claim 1.

Applicants note that the other references, that is, the Offutt '141 patent and the Born '110 publication, were not cited relative to amended independent Claim 1. However, Applicants further submit that these additional references likewise fail to teach or suggest the damage

tolerant shaft of amended independent Claim 1, taken either individually or in combination with any one or more of the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent. As such, the rejection of amended independent Claim 1, as well as the claims that depend therefrom, is therefore overcome.

With respect to amended independent Claim 9, the damage tolerant shaft is defined to include a plurality of lobes that are elongate so as to extend in a lengthwise direction. As noted above, the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent do not describe elongate shafts and, as such, do not teach or suggest an elongate lobes that extend in a lengthwise direction, as recited by amended independent Claim 9. As also described above, the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent do not teach or suggest a filler disposed between portions of adjacent lobes and extending in a lengthwise direction between the elongate lobes, as now further recited by amended independent Claim 9. Instead, the various materials considered by the Official Action to be filler in the wheels of the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent do not extend in a lengthwise direction. Moreover, the various materials considered by the Official Action to be filler in the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent is not disposed between adjacent lobes and, instead, is disposed between the halves of wheel or between a wheel cover and the wheel itself. As such, the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent do not teach or suggest the damage tolerant shaft of amended independent Claim 9, taken either individually or in combination.

Likewise, the other cited references similarly fail to teach or suggest the damage tolerant shaft of amended independent Claim 9 when taken either individually or in combination with any one or more of the Derleth '501 patent, the Main '065 patent and the Baumgartner '953 patent. In this regard, the Official Action points to Fig. 16 of the Offutt '141 patent for its disclosure of a shaft. The Official Action contends that the shaft depicted in Fig. 16 include a filler material based on the disclosure in col. 11, lines 69-71 that the hollow sections may be formed with removable inserts, compressed air or dissolvable foam. Even if the removable insert, compressed air, or dissolvable foam were considered to be a filler, this filler is not disposed between adjacent lobes as recited by amended independent Claim 9. Instead, this filler is

disposed within respective lobes so as to define the hollow central portion of each lobe. Accordingly, the Offutt '141 patent does not teach or suggest the damage tolerant shaft of amended independent Claim 9 including, in particular, the disposition of the filler between adjacent lobes.

With respect to the Born '110 publication, the Official Action contends that the spacers 4 constitute lobes as recited by amended independent Claim 9. Applicant submits, however, that the spacers 4 do not constitute or define any type of lobe. In this regard, the *American Heritage Dictionary*, Second College Edition, defines a lobe to be a rounded projection. In contrast, the spacers disclosed by the Born '110 publication are merely radially extending ribs. Moreover, while the spacers may define ribs, the spacers do not define an annular body that extends about the ribs as recited by amended independent Claim 9. Instead, the spacers intentionally extend outwardly and do not define any type of annular body. As such, the Born '110 publication also fails to teach or suggest the damage tolerant shaft.

As described above, the cited references each fail to teach or suggest the damage tolerant shaft of amended independent Claim 9. Additionally, Applicant submits that any combination of the cited references likewise fails to teach or suggest the damage tolerant shaft of amended independent Claim 9. As such, the rejection of amended independent Claim 9, as well as the claims that depend therefrom, is overcome.

Several new claims have been added to further define additional unique aspects of the claimed invention. In this regard, new dependent Claim 25 recites that the annular body and the plurality of ribs comprise a plurality of layered plies of composite material with each ply extending along and defining a portion of at least two ribs and an arcuate section of the annular body. Similarly, new dependent Claim 27 further defines each lobe to be comprised of a plurality of layered plies of composite material with each ply extending about a respective lobe and defining a portion of at least two ribs and an arcuate section of annular body. Further, new dependent Claim 26 further defines the annular body to include a second plurality of layered plies of composite material that extend circumferentially thereabout, while new dependent Claim 28 further adds an outer layer including a second plurality of layered plies of composite material that extend circumferentially about the plurality of lobes.

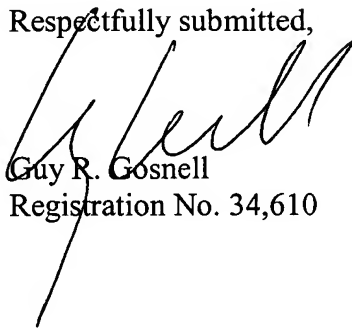
New independent Claim 29 has also been added that is drafted along the lines of independent Claim 1 prior to the most recent amendments, but further defines the annular body and the plurality of ribs to include a plurality of layered plies of composite material with each ply extending along and defining a portion of at least two ribs and an arcuate section of the annular body. New dependent Claims 30 and 31 further define the damage tolerant shaft of new independent Claim 29.

None of the cited references, taken either individually or in combination, teach or suggest the construction of the annular body and the plurality of ribs from a plurality of layers of plies of composite material in the manner set forth by the new claims. As such, Applicants further submit that new Claims 25-31, including new independent Claim 29, are patentably distinct and in condition for allowance.

CONCLUSION

In view of the amended specification, the amended and newly added claims and the remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application. It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

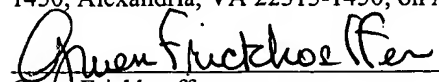
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